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ABSTRACT

Employment data from the 1960 and 1970 censuses were organized using the occupational classification system of John Holland to examine age, sex, and level differences in employment and to detect changes over the 10-year period. Data were organized by both kind and level of work in an attempt to answer the following questions: What are the relative frequencies (base rates) of different kinds of work done by men and women? How does the kind of work done differ by level? Are there differences in the kind of work done by people at different ages? and Is the distribution of kinds of work people do changing? Results of the tabulations imply that all categories of work are available to both men and women at the higher educational levels but not at the lower levels. The data also reveal the existence of large sex differences by type of work and level of work within type. Both the 1970 and 1965 tabulations show workers of different ages doing different kinds of work, but the tabulations of age differences for women are not the same as those for men. Finally, trends in the kind of work people do indicate a change in the composition by sex of some occupational categories and also a shift from a technological, thing-oriented occupational structure toward a more extroverted and persuasive or helping workforce. (BM)

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USING A CLASSIFICATION OF OCCUPATIONS TO DESCRIBE AGE, SEX, AND TIME DIFFERENCES IN EMPLOYMENT PATTERNS

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Schools and Maturity program is studying the effects of school, family, and peer group experiences on the development of attitudes consistent with psychosocial maturity. The objectives are to formulate, assess, and research important educational goals other than traditional academic achievement. The program has developed the Psychosocial Maturity (PSM) Inventory for the assessment of adolescent social, individual, and interpersonal adequacy. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large scale study of the effects of open schools, has developed the Teams-Games-Tournament (TGT) instructional process for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The School Process and Career Development program is studying transitions from high school to postsecondary institutions and the role of schooling in the development of career plans and the actualization of labor market outcomes.

This report examines age, sex, and time differences in employment patterns of males and females from 1960 to 1970.

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Abstract

Employment data from the 1960 and 1970 censuses were organized using Holland's occupational classification to examine age, sex, and level differences in employment, and to detect changes over the ten year period. Data were organized in terms of both kind and level of work. Arranging information about the occupational structure of the workforce in terms of a classification that parallels the way psychologists describe people facilitates some psychological interpretations of employment patterns. For example, realistic work is becoming relatively less common and the sexual composition of the occupational categories may be changing. The results provide structured information about the workforce and its changing nature that can be communicated to people planning their careers, personnel workers and counselors, and to government agencies and planners.

Using a Classification of Occupations to Describe Age, Sex, and Time Differences in Employment Patterns

Census tabulations describe workers by sex, educational level, age, and detailed occupation, and they describe occupations in terms of education, earnings, etc. Some summaries of the occupational structure use the major sociological classifications of work--prestige, status, income, or education--that organize occupations according to hierarchies. Other summaries use the major census categories--professional, managerial, clerical, etc.--to organize occupational data. Unfortunately, these summaries do not provide the most valuable descriptions for counselors and personnel workers. First, the available tabulations do not describe employment in terms that are parallel to the ways psychologists describe people. This means that practitioners must use the hierarchical or traditional classifications of employment information and at the same time use assessment devices that employ a different set of categories. Second, the major census groupings of occupations confound kind and level of work in a way that makes clear interpretations difficult.[1] Consequently, the translation of employment information into psychological terms usually is an arbitrary and clumsy process.

The present research uses Holland's (1973) occupational classification to organize and interpret employment data obtained in the 1960 and 1970 censuses. In contrast to the typical sociological or attainment classifications (Duncan, 1961; Siegel, 1971; Temme, 1975) that order occupations along a hierarchical dimension such as status, prestige, education, or income, this psychological classification groups occupations that are similar in terms of the kind of work done and the personal dispositions of typical incumbents. This classification is supplemented by using general educational development (GED) level (U.S. Department of Labor, 1965) to order occupations along a hierarchical dimension. Other hierarchical or status scales measuring level of

occupation could have been used instead of GED level, but GED correlates .82 with the Duncan Socioeconomic Index (Nafziger, Holland, Helms & McPartland, (1972) and .90 with Temme's (1975) prestige index. GED has the advantage that it is available for all occupations in the Dictionary of Occupational Titles.

For a complete account of the classification, theory, supporting evidence, and clarifications see Holland (1973) and Holland and Gottfredson (in press). A recent annotated bibliography of research related to the theory and classification is provided by Lackey (1975). Other summaries and critiques provide independent accounts of the theory (Campbell, 1974; Harmon, 1974; Osipow, 1973; Walsh, 1973). The relation of Holland's classification to the Minnesota Occupational Classification System is shown by Dawis and Lofquist (1974), and its relation to the Dictionary of Occupational Titles classification is provided by Viernstein (1972).

The classification provides a description in psychological terms of the kinds of work people in a society do, allows a comparison of the distributions of kinds of work that people of different ages and sexes do, and suggests a way to monitor cultural change in psychological terms. These are topics relating to social structure that have received systematic attention primarily in terms of level of work or by using the major divisions in the census classification. The present description will be useful to practitioners in facilitating person-job match, because it is expressed in terms of the same psychological classification used to describe people.

This report uses data on employment classified by kind and level in an attempt to answer the following questions:

1. What are the relative frequencies (base rates) of different kinds of work done by men and women?

2. How does the kind of work done differ by level?

3. Are there differences in the kind of work done by people at different ages?

4. Is the distribution of kinds of work people do changing?

Method

Employment Data

Civilian employment data were gathered by the U.S. Bureau of the Census in 1960 and 1970. The sampling unit in the 1960 census was the housing unit, except for group quarters where the unit was the person. The series of questions used to obtain occupational information in 1960 is shown by the U.S. Bureau of the Census (1963, p. ix). Tabulations in the present report are for workers aged 16 and over in 1960 and are based on a reorganization of published listings for the 297 detailed occupational categories used for the 1960 census (U.S. Bureau of the Census, 1963). These tables were based on a 5% sample.

In 1970 the sampling unit was the housing unit, except for group quarters identified in advance where the unit was the person. Reports of 1970 employment and retrospective reports of 1965 employment were requested for every twentieth sampling unit using a questionnaire called the 5% questionnaire. The questions about occupation are shown by the U.S Bureau of the Census (1970, p. 18). Information about current occupation included a list of the most important activities or duties performed. Only an occupational title was recorded for the retrospective report of a person's 1965 activity. This information was subsequently coded by Census Bureau clerks into the 417 detailed occupational categories (three-digit census codes) used in the 1970 version of the Classified Index of Industries and Occupations (U.S. Bureau of the Census, 1971).

Two sources of information from the 1970 census were used in the present research. (a) Summaries of employment for people aged 16 and over were obtained by reorganizing detailed tabulations from a published census report

(U.S. Bureau of the Census, 1973). (b) Age-specific tabulations of 1965 and 1970 employment for workers aged 21-70 were made using tapes provided by the Census Bureau. The tapes contained a stratified 1/50 subsample of all 5% questionnaires (U.S. Bureau of the Census, 1972, pp. 2-7, 194-198), and therefore contained a 1/1000 sample of the population.

Detailed census codes for occupations were recorded according to Holland's classification by using the codes provided by Holland (1973), or by using Viernstein's (1972, Table 4) procedure to obtain a code for titles not listed by Holland. Detailed census codes were also recoded into GED levels using the levels listed in the Dictionary of Occupational Titles.

In 1970 the Census Bureau used demographic characteristics to allocate people for whom occupation was not reported to one of the major occupational categories in the census classification. Approximately 5.6% of the men and 6.6% of the women with employment codes had been allocated in this way. The percentage allocated within each of the major census groupings ranged from 3.6 to 11.7%--most being allocated in the laborer and service worker categories. All allocated cases were excluded from the analyses because the major census groupings are heterogeneous with respect to Holland category. The Census Bureau did not use this allocation procedure in 1960, but occupation was not reported for 4.5% of the men, and 5.6% of the women in that year. These cases were excluded from the analyses. Consequently, tabulations in the present report are for somewhat less than 1/1000 of the populations in question.

Statistical Considerations

Tables in this report show frequency or percentage frequency distributions. For the most part, sample sizes are so large that the magnitude of observed differences is more important than statistical significance. In a few cases the samples are relatively small, so the statistical significance of differences in proportions is important. At the same time the

samples are not simple random samples so the usual procedures for testing for significance do not apply. Clustering within sampling units tends to increase sampling variability of proportions for characteristics that are homogeneous within clusters. In contrast, stratification increases the efficiency of sampling. The U.S. Bureau of Census (1972, chaps. 4 & 5) estimates standard errors for occupational data that are 10% larger than the standard errors for simple random samples. These estimates do not allow for the increased efficiency expected to result from stratified sampling. In this report, for tables showing percentage distributions with relatively small sample sizes, χ^2 tests for independence have been presented as a practical aid to interpretation even though this procedure is not strictly appropriate. Accordingly, differences not reaching the nominal .02 level of significance are not considered significant. This practical interpretive aid is believed to be conservative.

Results

Employment Base Rates by Sex and Level

Table 1 shows the work done by civilian men and women in 1970 classified by Holland category and by GED level required to do the work. These tabulations imply that all categories of work are available at the higher educational levels but not at the lower levels. This holds for both men and women. Consequently, work that is congruent with the full range of interests and personal styles is not available for people in low level jobs. Most people are employed in realistic jobs, and most lower level jobs are realistic. In short, type of work is not independent of level of work.

Insert Table 1 About Here

Table 2 summarizes information about sex differences in category and level of work done by employed people in 1970. Large sex differences exist

both by type of work and by level of work within type. A large proportion of women is employed in conventional and social occupations. In contrast, proportionately fewer men are employed in these kinds of jobs; instead they are disproportionately employed in realistic and enterprising jobs. For both men and women artistic or investigative jobs have the highest average GED level, followed in descending order of GED level by social, enterprising, conventional, and realistic occupations. On the average, women are employed in work at lower GED levels than men in each category.

Insert Table 2 About Here

Cultural and Age Changes

Information about employment patterns for men and women at different times enables us to examine changes in the structure of the workforce. Similarly, employment data for workers of different ages enables us to examine trends in the kinds of work done by people of different ages. This section presents some information on these topics.

Two interpretive cautions are in order. First, the data on 1965 employment are retrospective reports made in 1970. Actual 1965 reports would have been preferred. The use of retrospective reports may bias the results in unknown ways due to recall errors, failure to report 1965 occupation, and sampling errors. Second, the data do not enable the complete disentangling of age changes in employment patterns from cohort differences.[2] Similarly, the complete disentangling of time shifts in employment from cohort differences is impossible. At the same time, the results can suggest age-related differences that are due to age or cohort, and cultural differences that are due to time or cohort differences.

Cultural change. Table 3 shows frequency and percentage distributions of employment in the six kinds of work in 1965 and 1970 for civilian men and women aged 21-65 in each year. These results suggest a substantial

decrease in the percentage of workers employed in realistic work and substantial increases in the percentage of workers employed in enterprising work. These differences hold for both men and women.

Insert Table 3 About Here

Results are shown separately by age groups in Tables 4 and 5. These tables require some explanation. The top half of the tables show percentage distributions of employment of workers whose ages in 1965 are shown in the column heads. (These people were five years older than the age shown when their 1965 occupations were retrospectively reported in 1970.) The spanner headings label these results "earlier cohort (1965)" to emphasize that they refer to employment for a different cohort--and a different time--from the results in the columns immediately below them in the bottom half of the tables. The lower parts of these tables show percentage distributions of employment of workers whose ages in 1970 are shown in the column heads.

Insert Tables 4 and 5 About Here

By comparing the percentages for two cohorts in the same age range one can observe differences in the distributions of employment due to time differences confounded by cohort differences. For example, 68.5% of the men aged 21 to 25 in 1965 but only 62.2% of the men at that age in 1970 were employed in realistic work. The reader can verify that the percentage of employed men with realistic jobs was smaller in 1970 than in 1965 for every age group. The same observation also holds for women. In contrast, the percentage of workers employed in enterprising work is higher in 1970 than in 1965 for each age group for both sexes. Other time-related differences in Tables 4 and 5 are less substantial, less clear, and less consistent.

Realistic and enterprising work is dominated by men, and social and Conventional work is dominated by women. To investigate the possibility that the domination of occupational cetegories by one sex may be diminishing, the 1965 and 1970 employment data were rearranged to examine the composition of each category of work by sex. These results are shown in Table 6. Enterprising work is the only category showing a significant and substantial shift in its composition by sex. The results for 1965 show that 16% of workers aged 21-65 employed in the enterprising category were women whereas this figure was 23% in 1970. Table 6, along with Tables 3 and 5, imply not only that a larger proportion of women were employed in enterprising work in 1970 than in 1965, but also that women in 1970 held a substantially larger proportion of enterprising jobs than they did in 1965.

Insert Table 6 About Here

Both kind of work and level of work are important in assessing possible changes in the vocational behavior of men and women. To examine changes in patterns of employment at high levels, some additional analyses were performed. Table 7 shows the composition by sex of work at GED levels 5 and 6. Women held substantially larger proportions of high level investigative and artistic work in 1970 than in 1965 as well as a larger share of high level jobs in general. Women did not hold a higher proportion of high level enterprising jobs. Comparing Tables 6 and 7, women held much smaller proportions of high level realistic and conventional work than their share of these kinds of work overall. These results imply that women in these categories are employed primarily in low level jobs.

Insert Table 7 About Here

Because the comparisons in Tables 3 and 6 use retrospective reports of

1965 employment that may introduce unknown biases into the comparisons, we decided that confirmation using an additional source of information was required. For this purpose tabulations from the 1960 census of population were used. Unfortunately, the Census Bureau's occupational classification was changed somewhat between the 1960 and 1970 censuses. The 1960 classification used 297 separate occupational categories and the 1970 census was more detailed with 417 categories. Because the 1960 classification is less detailed it does not lend itself as well to reorganization using another occupational classification

Table 8 shows a comparison of the patterns of 1960 occupations of employed men and women with the 1970 occupations of these groups. Like Tables 1 and 2 these tabulations are for workers aged 16 and above. These 1960-1970 comparisons correspond to the 1965-1970 results in showing a decline in realistic work. They do not show the large increase in enterprising work indicated in the 1965-1970 comparisons (Table 3). Instead, the largest increases are for social and conventional work. In particular, larger proportions of women were engaged in work of these kinds in 1970 than in 1960. The proportions of workers engaged in investigative work in 1970 was also larger than in 1960.

Insert Table 8 About Here

Table 9 compares the composition by sex of each kind of work in 1960 and 1970 for workers aged 16 and over. The increase in the proportion of enterprising work done by women seen in Table 6 is also seen in Table 9, but it is not striking. The increases in the proportions of social and conventional work held by women between 1960 and 1970 shown in Table 9 are larger than the 1965-1970 increases, and they are significant. In contrast to the earlier analyses, the proportion of artistic work done by women decreased between 1960 and 1970. Tables 6 and 9 converge in showing a moderate increase in the

proportion of realistic work done by women.

Insert Table 9 About Here

Age differences. Tables 4 and 5 allow some additional comparisons of possible age trends in kind of employment. Workers of different ages are doing different kinds of work. For example, the 1970 employment distributions show proportionately more of the youngest and oldest men employed in realistic work, and enterprising work is relatively rare among the youngest men. The 1965 tabulations also show these age differences.

The tabulations for women also show age differences, but they are not the same as those for men. For women, realistic work is proportionately more frequent in the older age ranges. Conventional work is proportionately more frequent for very young (21-25 year old) women. Enterprising work, relatively infrequent among younger women, is more frequent for older women.

Discussion

The results of the present research form a systematic psychological description of the work that adult men and women do in this country. We used the best available data to piece together some tentative answers to some important vocational questions, but the reliance on retrospective reports of 1965 employment and on the less detailed 1960 census data weakens the analyses of cultural changes. Similarly, the cross-sectional nature of the study means that age differences are confounded with possible cohort differences in the analyses.

Employment Distributions

Employment is unevenly distributed across the categories of work in Holland's classification. In particular, the base rate for realistic employment is high, representing almost one half of the civilians working in 1970. In contrast, artistic employment is rare, representing only about one percent of the civilians

working in 1970. Furthermore, these base rates differ by sex, level of work, age of workers, and across time.

These results have multiple implications. The extreme base rates imply, for example, that using interest inventories to predict future employment in artistic work will be difficult. The age differences in employment patterns suggest that different kinds of work may be most readily available for people of different ages. The sex differences are one way of describing the way our culture treats men and women. Finally, the time differences illustrate the dynamic nature of the labor market in psychological terms. These results provide a way of summarizing and communicating these features of the occupational structure to people planning their careers, psychologists planning recruitment or training programs, government agencies, vocational counselors, and personnel workers.

In practical applications this information, together with valid personal vocational assessments, will help clients understand the kinds of work that are likely to be relatively difficult or relatively easy to obtain. This information need not be communicated in a way that encourages the maintenance of the status quo in age or sex differences in employment. Instead, clients can be encouraged to pursue their interests or abilities and at the same time be provided with accurate information about the structure of the workforce and its changing nature.

Cultural Change

Although the data are ambiguous, the results imply that changes may be occurring in the kinds of work people do. These possibilities are of special importance because of the current interest in expanding the career options of men and women, and because the work a society does is a large part of what a society is. The results suggest a substantial decrease in the proportions of both men and women in the realistic category between 1965 and 1970. This trend is supported in the supplementary analyses using the 1960 census data.

The substantial increases in the proportions of both men and women in the enterprising category seen in the 1965-1970 comparisons were not supported in the supplementary analyses using the 1960 census data. Because the 1965 data are retrospective reports and the 1960 data rely on a less detailed census classification the meaning of this discrepancy is unclear. Nevertheless, both analyses suggest an increase in the proportion of work that is in either the social or the enterprising categories--closely related categories in Holland's scheme. The results also suggest proportionate increases in conventional and investigative employment, but the differences were greater in 1960-1970 comparisons.

These trends are in line with other estimates of what appears to be happening to our occupational structure. The Bureau of Labor Statistics (1974) uses major census groupings to organize employment data. They show a decline in blue-collar and farm workers as a percentage of all workers from 44.2 to 38.8% between 1960 and 1972, and this decline is projected to continue in their estimates to 1985. In contrast, there was an increase in the percentage of the workforce engaged in white collar work from 43.1% in 1960 to 47.8% in 1972. This trend is also expected to continue in their projections to 1985. These groupings are a composite of different kinds as well as levels of work, making comparisons difficult, but much blue-collar and farm work is realistic and much white-collar work is social, enterprising, conventional, and investigative.

Tallying changes in terms of the present classification makes possible some psychological interpretations of cultural change. The relative decrease in realistic work and the relative increase in social or enterprising work suggest a shift from a technological, thing-oriented occupational structure toward a more extroverted and persuasive or helping workforce. This trend may in part be a result of a shift of social tasks from informal family or

community organizations to formal organizations engaged in social service activities. Interpretations might assume changes in labor demand or supply or in the productivity of workers in different industries. The present results do not allow an explication of these possibilities.

A general cultural shift was also suggested earlier by Campbell (1971), who developed a cultural change scale for the Strong Vocational Interest Blank. He contrasted the item responses of people in the same occupations in the 1930's and the 1960's. The mean cultural change (or "modernity") scale scores for occupational groups correlate .85 with the year in which the groups were tested.[3] The meaning of the scale is suggested by its correlations with other scales. It correlates .63 with the Law/Politics Basic Interest Scale, .61 with the Public Speaking Scale, .49 with the Business Administration Scale, .44 with Merchandising, .40 with Sales, -.32 with Nature, and -.20 with Agriculture. All of the positive correlates are basic interests associated with the enterprising type, and the negative correlates are basic interests associated with the realistic type (see Campbell, 1974). At the item level, high scorers say "like" to auctioneer, judge, and social worker, and "dislike" to machinist. High scorers like spendthrifts and fashionably dressed people and dislike thrifty people, old people, and steadiness or permanence of work.

Some results also suggest changes in the composition by sex of the occupational categories. In 1965 women constituted 34.8% of employed people, and they formed 37.7% of employed people in 1970 (U.S. Department of Labor, 1975; percentages are for people aged 16 and over). This trend is seen, of course, in the present results as well--women as a percentage of workers rose from 34.7 to 37.2% for the 21 to 65 year-old workers in the present samples. The news in our 1965-1970 comparisons is that the composition by sex of the six kinds of work may be changing. Women constituted a larger proportion of enterprising workers in 1970 than in 1965.

Enterprising work has traditionally been male-dominated. More detailed examination of shifts at higher levels suggests, however, that women did not make gains in enterprising work at higher levels. Instead, women in 1970 held larger proportions of high level investigative and artistic work than they did in 1965. The failure of the 1960-1970 comparisons to accord with the 1965-1970 comparisons with respect to enterprising work implies that these results are only suggestive. The 1960-1970 comparisons suggest that the traditionally female-dominated social and conventional occupations may have become even more strongly dominated by women over the decade.

An interesting paradox in the results is that although women had a slightly larger share of employment in the realistic category in 1970 than in 1960 or 1965, a smaller percentage of women workers in 1970 had realistic jobs. The relative frequency of work in the realistic category is declining. Thus, although there is a suggestion of a slight decrease in the domination of realistic work by men, this does not imply that a larger proportion of women held realistic jobs.

A caution regarding using the present findings as an indication of decreasing occupational segregation is in order. Segregation is possible even within categories or occupations. For example, in a single department store, sales personnel may be men in the sports department and women in the curtain and dishware departments. If employment in the enterprising category increases in occupations dominated by women, it is possible for women to take enterprising or realistic jobs without moving into the jobs traditionally held by men (cf. Gross, 1968; Oppenheimer, 1969; Van Dusen & Sheldon, 1976).

Age Differences

The age differences in Tables 4 and 5 have several possible interpretations. Cultural events may have influenced different cohorts differently. Another interpretation involves life cycle differences in employment preferences or access to employment. The disproportionate employment of men in the intermediate

age ranges in enterprising work may be partly the result of employers tending to see men of these ages as supervisors. Similarly, the disproportionate employment of young women in conventional work may occur partly because employers often see young women as potential secretaries or clerical workers (Noland & Bakke, 1949). Finally, the age trends may be due to labor force participation patterns. The increase in men engaged in investigative work over the first three age periods may reflect the completion of extended training required for that work. Or, the drop in the proportion of working women employed in conventional work over the first two age ranges may coincide with changes in the marital status of women at these ages (Ferriss, 1971), with the completion of husbands' training, or other age-related events that may affect labor force participation (Oppenheimer, 1969, Tables 1.3 and 1.4). The changing labor force participation rates for women of different ages in recent years (Oppenheimer, 1969; U.S. Department of Labor, 1975) make this interpretation even more plausible.

Because it is often assumed that extensive cultural changes are currently taking place that will have profound effects on the vocational behavior of men and women, it is especially important to estimate the magnitude of possible cohort and time-related trends for recent and future years. Only more analytical research along the lines suggested by Schaie (1965) will help unravel the age, cohort, and time changes suggested by the results presented here.

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Footnotes

[1]The desire to maintain comparability with earlier censuses has apparently prevented major revision of the census classification. See Scoville (1965), L. Gottfredson (Note 1), Gordon (1967), Barnes (1954, chap. 2), and Kelley, Chirikos, and Finn (1975) for critiques of the census groupings and illustrations of how kind or function of work and level of occupation are confounded in the census groupings.

[2]Here and elsewhere in this report the distinctions made by Schaie (1965) among "age" trends, "cohort" differences, and "time" differences have been used. These are conceptually independent sources of observed differences. Time differences correspond to what economists call secular trends. They are differences associated with the particular time that measurement is made. For example, days are warmer now than they were in the last ice-age. Cohort differences are differences due to the particular cohort to which one belongs and may reflect cultural or other influences that affect groups born at different times differently. For example, successive litters of Tryon's rats differed in maze-brightness due to genetic changes between cohorts. Age-related differences reflect developmental changes in people or differences in the way that people are treated at different ages. For example, as people grow older they usually lose their deciduous teeth.

[3]For simplicity only the results for men are summarized here. The results for women are very similar.

Table 1

Kind and Level of Work Done by Men and Women Aged 16 and Above in 1970

(Thousands)

Kind of Work	General Educational Development Level					
	1	2	3	4	5	6
			Men			
Realistic	360	7749	9512	8599	451	182
Investigative	--	--	--	1136	584	1485
Artistic	--	--	--	106	454	114
Social	--	2	340	312	1387	580
Enterprising	--	--	1925	3060	3605	541
Conventional	--	44	940	994	576	9
			Women			
Realistic	90	3110	3824	427	35	2
Investigative	--	--	--	244	101	142
Artistic	--	--	--	58	206	36
Social	--	24	799	1536	3248	165
Enterprising	--	--	1727	585	683	28
Conventional	--	11	4767	5114	197	4

Note. Based on a reclassification of published census tabulations derived from a 5% sample.

Table 2

Distribution of Employed People Aged 16 and Above Across the Six Kinds of Work and Average General Educational Development Level for Each Kind of Work in 1970 by Sex

	Men			Women			Both Sexes		
	n	%	mean level	*n*	%	mean level	*n*	%	mean level
Realistic	26853	60	3.1	7488	28	2.6	34341	48	3.0
Investigative	3204	7	5.1	486	2	4.8	3690	5	5.1
Artistic	673	2	5.0	300	1	4.9	973	1	5.0
Social	2621	6	4.8	5772	21	4.5	8393	12	4.6
Enterprising	9131	20	4.3	3022	11	3.7	12153	17	4.2
Conventional	2565	6	3.8	10093	37	3.6	12658	17	3.6
Total	45047	100	3.6	27161	100	3.6	72208	100	3.6

Note. Based on a reclassification of published census tabulations derived from a 5% sample.

Table 3

Employment in Each Kind of Work for Men and Women Aged 21-65 in 1965 and 1970

Kind of Work	Men		Women		Both Sexes	
	1965	1970	1965	1970	1965	1970
	Frequency					
Realistic	21577	23024	5688	6488	27265	29512
Investigative	2188	2884	268	418	2456	3302
Artistic	502	629	192	277	694	906
Social	1906	2504	3943	5269	5849	7773
Enterprising	5206	8122	1018	2444	6224	10566
Conventional	1752	2251	6489	8486	8241	10737
Total	33131	39414	17598	23382	50729	62796
	Percent					
Realistic	65.1	58.4	32.3	27.7	53.7	47.0
Investigative	6.6	7.3	1.5	1.8	4.8	5.2
Artistic	1.5	1.6	1.1	1.2	1.4	1.4
Social	5.8	6.4	22.4	22.5	11.5	12.4
Enterprising	15.7	20.6	5.8	10.4	12.3	16.8
Conventional	5.3	5.7	36.9	36.3	16.2	17.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

Note. Based on a 1/1000 sample produced from basic records from the 1970 census of population. Data for 1965 are retrospective reports made in 1970.

Table 4

Kind of Work Done by Two Cohorts of Men at Each of Nine Ages at Two Times (Percent)

Kind of Work	Age								
	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65
Earlier cohort (1965)									
Realistic	68.5	62.6	61.2	62.2	63.6	64.8	67.8	67.8	70.1
Investigative	7.2	7.9	9.1	7.1	7.1	5.6	4.6	5.2	3.7
Artistic	1.6	1.9	2.0	1.6	1.5	1.2	1.2	1.2	1.2
Social	6.2	7.4	6.5	6.3	5.8	5.3	4.6	4.3	4.3
Enterprising	10.5	14.4	15.7	17.5	16.9	18.6	16.7	16.2	15.5
Conventional	6.1	5.8	5.6	5.3	5.1	4.4	5.1	5.2	5.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	3834	4002	4099	4524	4443	3967	3569	2727	1685
Later cohort (1970)									
Realistic	62.2	56.1	54.5	55.6	56.6	59.2	59.4	62.4	62.8
Investigative	6.6	9.6	9.4	8.8	7.2	6.9	5.7	4.6	5.0
Artistic	1.9	1.8	1.8	1.8	1.7	1.4	1.2	1.2	1.3
Social	7.8	7.5	7.4	6.3	6.1	5.6	5.3	5.0	4.8
Enterprising	13.6	19.0	21.8	21.8	23.3	21.6	23.4	21.0	20.4
Conventional	7.8	6.0	5.2	5.7	5.0	5.3	4.8	5.6	5.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	4901	5258	4510	4593	4992	4882	4288	3685	2305

Note. Based on a 1/1000 sample produced from basic records from the 1970 census of population. Data for 1965 are retrospective reports made in 1970.

Table 5

Kind of Work Done by Two Cohorts of Women at Each of Nine Ages at Two Times (Percent)

Kind of Work	Age								
	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65
Earlier cohort (1965)									
Realistic	21.9	28.6	33.0	33.9	34.4	34.4	37.4	36.5	35.1
Investigative	2.7	2.2	1.8	1.6	1.4	0.9	0.8	0.8	0.5
Artistic	1.2	1.5	1.1	1.4	0.8	0.9	1.1	1.1	0.4
Social	26.1	25.6	22.3	19.2	19.4	21.2	20.9	23.6	26.7
Enterprising	2.9	3.4	4.4	6.1	6.8	7.1	7.9	6.3	9.4
Conventional	45.2	38.6	37.4	37.6	37.3	35.5	31.8	31.7	28.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	1532	1770	1876	2245	2479	2297	2003	1532	810
Later conort (1970)									
Realistic	17.5	22.6	28.6	29.9	30.4	30.7	31.9	33.5	32.2
Investigative	3.1	3.4	1.5	1.8	1.2	1.2	1.1	1.1	0.6
Artistic	1.6	1.4	1.5	1.3	0.9	0.8	0.9	1.0	1.0
Social	25.2	27.4	25.2	22.8	19.4	18.6	20.2	20.9	22.9
Enterprising	6.4	7.4	8.2	9.6	11.8	12.3	13.6	15.0	12.8
Conventional	46.2	37.8	34.9	34.6	36.2	36.3	32.2	28.5	30.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
n	3899	2588	2327	2557	2923	3039	2634	2178	1237

Note. Based on a 1/1000 sample produced from basic records from the 1970 census of population. Data for 1965 are retrospective reports made in 1970.

Table 6

Sex of Employed Civilians Aged 21 to 65 in Each Kind of Work in 1965 and 1970

Kind of Work	1965			1970		
	%		total	%		total
	men	women	n	men	women	n
Realistic	79.1	20.9	27265	78.0	22.0	29512 *
Investigative	89.1	10.9	2456	87.3	12.6	3302
Artistic	72.3	27.7	69[illegible]	69.4	30.6	906
Social	32.6	67.4	5849	32.2	67.8	7773
Enterprising	83.6	16.4	6224	76.9	23.1	10566 **
Conventional	21.2	78.7	8241	21.0	79.0	10737
All kinds	65.3	34.7	50729	62.8	37.2	62796 **

Note. Based on a 1/1000 sample produced from basic records from the 1970 census of population. Data for 1965 are retrospective reports made in 1970.

* $p < .01$ by χ^2 test with $\nu = 1$.

** $p < .001$ by χ^2 test with $\nu = 1$.

Table 7

Sex of 21-65 Year-Old Employed People in Each Kind of Work at General Educational Development Levels 5 and 6 in 1965 and 1970

Kind of Work	1965 % men	1965 % women	1965 total n	1970 % men	1970 % women	1970 total n
Realistic	95.8	4.2	571	94.5	5.5	561
Investigative	91.8	8.1	1534	88.5	11.5	1907**
Artistic	73.0	27.0	571	66.7	33.3	702*
Social	35.2	64.8	4091	33.0	67.0	4930
Enterprising	84.3	15.7	4748	84.2	15.8	5244
Conventional	74.9	25.1	578	70.9	29.1	681
All kinds	68.2	31.8	12093	65.7	34.3	14025***

Note. Based on a 1/1000 sample produced from basic records from the 1970 census of population. Data for 1965 are retrospective reports made in 1970.

* $p < .02$ by χ^2 test with $\nu = 1$.

** $p < .01$ by χ^2 test with $\nu = 1$.

*** $p < .001$ by χ^2 test with $\nu = 1$.

Table 8

Employment in Each Kind of Work for Men and Women Aged 16 and Over in 1960 and 1970 (Percent)

Kind of Work	Men		Women		Both Sexes	
	1960	1970	1960	1970	1960	1970
Realistic	64.98	59.61	33.30	27.57	54.69	47.56
Investigative	4.00	7.11	1.23	1.79	3.10	5.11
Artistic	1.10	1.49	1.33	1.10	1.18	1.35
Social	4.32	5.82	17.98	21.25	8.76	11.62
Enterprising	19.68	20.27	12.47	11.13	17.34	16.83
Conventional	5.92	5.69	33.68	37.16	14.94	17.53
Total (thousands)	43069	45047	20980	27161	64050	72208

Note. Based on a reclassification of published census tabulations derived from 5% samples.

Table 9

Sex of Employed Civilians Aged 16 and Over in Each Kind of Work in 1960 and 1970

Kind of Work	1960			1970			
	%		total (thousands)	%		total (thousands)	
	men	women		men	women		
Realistic	80.2	19.8	13334	78.2	21.8	34341	***
Investigative	87.1	12.9	1888	86.8	13.2	3690	
Artistic	63.2	36.8	717	69.2	30.8	973	**
Social	33.3	66.7	5340	31.2	68.8	8393	*
Enterprising	76.6	23.4	10567	75.1	24.9	12153	**
Conventional	26.7	73.3	9109	20.3	79.7	12658	***
All kinds	67.5	32.5	60955	62.4	37.6	72208	***

Note. Based on a reclassification of published census tabulations derived from 5% samples. Significance approximations are based on cell frequencies in thousands.

* $p < .02$ by χ^2 test with $\nu = 1$.

** $p < .01$ by χ^2 test with $\nu = 1$.

*** $p < .001$ by χ^2 test with $\nu = 1$.